

# List of Publications

## REFEREED JOURNAL PUBLICATIONS

- [10] Justin Hijam, Rohit Gupta, **Madhu Vadali\***, Amit Arora, “Modeling and Performance of CW Laser Polishing of Electron Beam Melted Ti6Al4V”, SME Manufacturing Letters, accepted for publication, Acceptance date: 22/03/2022 DOI: Preprint DOI:
- [9] Utsavkumar Mistry, **Madhu Vadali\***, “A Steady State Semi-Analytical Approximation of Melt Pool Evolution in Pulsed Laser Surface Melting”, SME Journal of Manufacturing Processes. Volume 74, February 2022, Pages 123-135, DOI: <https://doi.org/10.1016/j.jmapro.2021.11.064>; Preprint DOI: 10.31224/osf.io/2kzca
- [8] **Madhu Vadali**, Chao Ma, Xiaochun Li, Frank Pfefferkorn, Neil Duffie, “Intelligent Trajectories for Pulsed Laser Polishing”, Int. J. of Mechatronics and Manufacturing Systems, 2018 Vol.11, No.2/3, pp.101 - 119.
- [7] Tianheng Feng, **Madhu Vadali**, Zheren Ma, Dongmei Chen, and Jason Dykstra; 2017, “A Finite Element Method with Full Bit-Force Modeling to Analyze Drillstring Vibration,” ASME Journal of Dynamic Systems, Measurement and Control., 139(9), 0091016-091016-10, June 05, 2017 Paper No: DS-16-1508, doi: <http://dx.doi.org/10.1115/1.4036083> **Impact Factor: 1.388**
- [6] Ma, C., **Vadali, M.**, Li, X., Duffie, N.A., Pfefferkorn, F.E.; 2014 “Analytical and Experimental Investigation of Thermocapillary Flow in Pulsed Laser Micro Polishing,” ASME J. of Micro and Nano Mfg., 2(2), 021010 Apr 28, 2014, Paper No: JMNM-13-1073, doi: <http://dx.doi.org/10.1115/1.4027433>.
- [5] Ma Chao, **Vadali M.**, Duffie Neil A., F.E. Pfefferkorn, X. Li, 2013 “Melt Pool Flow and Surface Evolution During Pulsed Laser Micro Polishing of Ti6Al4V”, ASME J. Manuf. Sci. Eng. 135(6), 061023; Nov 27, 2013; (8 pages); Paper No: MANU-13-1141; doi: <http://dx.doi.org/10.1115/1.4025819>. **Impact Factor: 3.48**
- [4] Pfefferkorn, F.E., N.A. Duffie, X. Li, **M. Vadali**, C. Ma, 2013, “Improving surface finish in pulsed laser micro polishing using thermocapillary flow,” CIRP Annals - Manufacturing Technology, Volume 62, Issue 1, 2013, Pages 203–206, DOI: <http://dx.doi.org/10.1016/j.cirp.2013.03.112>. **Impact Factor: 2.893**
- [3] **Vadali, M.**, C. Ma, N.A. Duffie, X. Li, F.E. Pfefferkorn, 2013, “Effects of Pulse Duration on Laser Micro Polishing,” ASME Journal of Micro and Nano-Manufacturing (J. Micro Nano-Manuf. 1(1)), 011006 (Mar 25, 2013) (9 pages); Paper No: JMNM-12-1064; doi: <http://dx.doi.org/10.1115/1.4023756>.
- [2] Duffie, N. A, Fenske, J., **Vadali, M.**, 2012, “Coordination of Capacity Adjustment Modes in Work Systems with Autonomous WIP Regulation”, J. Logistics Research, V5, Issue 3-4, p99-104 Date: 05 Oct 2012, Springer-Verlag, DOI: <http://dx.doi.org/10.1007/s12159-012-0088-7>. **Impact Factor: 1.39**

- [1] **Vadali, M.**, Ma, C., Duffie, N. A., Li, X., and Pfefferkorn, F. E., 2012, "Pulsed Laser Micro Polishing: Surface Prediction Model," SME Journal of Manufacturing Processes, 14(3), pp. 307-315, 08/2012; DOI: <http://dx.doi.org/10.1016/j.jmapro.2012.03.001> **Impact Factor: 2.32**

#### CONFERENCE PROCEEDINGS

- [23] Rohit Gupta, Justin Hijam, Rama Balhara, and **Madhu Vadali\***, "Design of Micro-scale Periodic Surface Textures by Pulsed Laser Melting and its Influence on Wettability", In Proceedings of the ASME 2022 17th International Manufacturing Science and Engineering Conference, MSEC2022, June 27 – July 1, 2022, Paper No: MSEC2022-85829, *accepted* on 17/02/2022; pages, DOI:
- [22] Rajdeep Singh Devra, Nishkarsh Srivastava, **Madhu Vadali\***, and Amit Arora, "Polymer Filament Extrusion Using LDPE Waste Polymer: Effect of Processing Temperature", In Proceedings of the ASME 2022 17th International Manufacturing Science and Engineering Conference, MSEC2022, June 27 – July 1, 2022, Paper No: MSEC2022--85586, *accepted* on 17/02/2022; pages, DOI:
- [21] Justin Hijam, Rohit Gupta, **Madhu Vadali\***, Amit Arora, "Modeling and Performance of CW Laser Polishing of Electron Beam Melted Ti6Al4V", 50<sup>th</sup> SME North American Manufacturing Research Conference (NAMRC), Acceptance date: 22/03/2022 DOI:; Preprint DOI:
- [20] Rohit Gupta and **Madhu Vadali\***, "Surface Periodicity Index ( $S_{PI}$ ): A Measure of Periodicity of Surface Topography", In World Congress on Micro and Nano Manufacturing, IIT Bombay, Mumbai, India, 21-23 September 2021
- [19] Omkar Jadhav, Rohith G and **Madhu Vadali\***, "A Differential Torque Controller for Autonomous Wheeled Mobile Robots" In Proceedings of Advances in Robotics 2021 (AIR 2021), ACM, New York, NY, USA, June 30 – July 4, 2021, Article No. 12, DOI: <https://doi.org/10.1145/3478586.3480648>
- [18] Suraj Borate and **Madhu Vadali\***, "FF-RRT: A Sampling Based Path Planner for Flexible Multi-Robot Formations", In Proceedings of Advances in Robotics 2021 (AIR 2021), ACM, New York, NY, USA, June 30 – July 4, 2021, Article No. 53, DOI: <https://doi.org/10.1145/3478586.3480645>
- [17] Aditya Rathi, Rohith G and **Madhu Vadali\***, "Prioritized Path Planning of Multiple Autonomous Vehicles in Urban Environments" In Proceedings of Advances in Robotics 2021 (AIR 2021), ACM, New York, NY, USA, June 30 – July 4, 2021, Article No 25, DOI: <https://doi.org/10.1145/3478586.3480640>
- [16] Utsavkumar Mistry and **Madhu Vadali\***, "Influence of Surface Geometry on Meltpool Flows and Shape in Pulsed Laser Surface Melting", In Proceedings of the ASME 2021 16th International Manufacturing Science and Engineering Conference, MSEC2021, June 21-25, 2021, Virtual, Online , Paper No: MSEC2021-60460, V002T08A005; 9 pages, DOI: <https://doi.org/10.1115/MSEC2021-60460>

- [15] Sanjeevi Nakka, Bharg Mehta, **Madhu Vadali\***, “Preliminaries on Dynamic Modelling of Flexible Manipulators” 2019 The Sixth Indian Controls Conference, Hyderabad, India, December 18–19, 2019, DOI: 10.1109/ICC47138.2019.9123195
- [14] **Vadali M**, Venugopal, S, “Accelerated Learning-by-Doing for the Fast-Changing Industrial Technical Competencies”, Bengaluru, India, January 4-5, 2019, [not published].
- [13] **Vadali M**, Kumar, V, “Numerical study pulsed laser surface remelting” 2018 3<sup>rd</sup> Conference on Laser Polishing”, Aachen, Germany, September 12–13, 2018, [abstract only].
- [12] Feng T, **Vadali M**, Chen D, “Modeling and Analysis of Directional Drilling Dynamics” 2017 ASME. Dynamic Systems and Control Conference, Tysons, Virginia, USA, October 11–13, 2017, V003T43A006. doi:10.1115/DSCC2017-5358.
- [11] Xingyong Song, **Madhu Vadali**, Yuzhen Xue, and Jason D. Dykstra, 2016, “Tracking Control of Rotary Steerable Toolface in Directional Drilling”, 2016 IEEE International Conference on Advanced Intelligent Mechatronics (AIM), Pg. 1210-1215, 12-15 July, Banff, Canada, doi: [10.1109/AIM.2016.7576935](https://doi.org/10.1109/AIM.2016.7576935)
- [10] **Madhu Vadali**, Yuzhen Xue, Xingyong Song, Jason Dykstra, 2015, “Control of Rotary Steerable Toolface in Directional Drilling”, ASME Dynamic Systems and Controls Conference, Paper No. DSCC2015-9857, Oct 28-30, Columbus, OH, USA, doi:[10.1115/DSCC2015-9857](https://doi.org/10.1115/DSCC2015-9857)
- [9] **Madhu Vadali**, Zhijie Sun, Yuzhen Xue, Jason Dykstra, 2014, “Dynamic Modeling of Bottomhole Assembly”, ASME Dynamic Systems and Controls Conference, Paper No. DSCC2014-5927, pp. V003T37A001; 8 pages, doi: <http://dx.doi.org/10.1115/DSCC2014-5927>, Oct 22-24, San Antonio, TX, ISBN: 978-0-7918-4620-9
- [8] Pfefferkorn, F.E., **Madhu Vadali**, C. Ma, N.A. Duffie, X. Li, W. Dinauer, 2013, “Pulsed Laser Micro Polishing of Metals,” SME Micromanufacturing Conference, April 16-17, Minneapolis, MN [abstract only].
- [7] Ma, C., **Madhu Vadali**, N.A. Duffie, F.E. Pfefferkorn, X. Li, 2013, “Melt Pool Flow and Surface Evolution during Pulsed Laser Micro Polishing of Ti6Al4V,” ASME 2013 International Manufacturing Science and Engineering Conference, June 10-14, Madison, WI. MSEC2013-1117
- [6] **Madhu Vadali**, C. Ma, X. Li, F.E. Pfefferkorn, N.A. Duffie, 2013, “Irregular, Adaptive Scan Trajectories for Pulsed Laser Micro Polishing,” The 8th International Conference on MicroManufacturing, March 25-28, Victoria, BC, Canada, ICOMM2013-0033
- [5] Ma, C., **Madhu Vadali**, N.A. Duffie, F.E. Pfefferkorn, X. Li, 2013, “Effect of Thermocapillary Flow on the Surface Profile in Pulsed Laser Micro Polishing,” The 8th International Conference on MicroManufacturing, March 25-28, Victoria, BC, Canada, ICOMM2013-0036
- [4] **Madhu Vadali**, Chao Ma, Neil A. Duffie, Xiaochun Li and Frank E. Pfefferkorn, Effects of Laser Pulse Duration on Pulsed Laser Micro Polishing, The 7th International Conference on Micro Manufacturing - 2012.

- [3] **Madhu Vadali**, Chao Ma, Neil A. Duffie, Xiaochun Li and Frank E. Pfefferkorn, Model Guided Pulsed Laser Micro Polishing of H13 Tool Steel, The 44th CIRP Conference on Manufacturing Systems - 2011.
- [2] **Madhu Vadali**, Chao Ma, Neil A. Duffie, Xiaochun Li and Frank E. Pfefferkorn, Pulsed Laser Micro Polishing: Surface Prediction Model, The 6th International Conference on Micro Manufacturing - 2011.
- [1] **Madhu Vadali**, Chao Ma, Neil A. Duffie, Xiaochun Li and Frank E. Pfefferkorn, Pulsed Laser Micro Polishing: An Analytical Method for Predicting Surface Finish, The ASME 2011 International Manufacturing Science and Engineering Conference.

#### BOOK CONTRIBUTIONS

- [1] Duffie, N. A, Fenske, J., **Vadali, M.**, “Coordination of Capacity Adjustment Modes in Work Systems with Autonomous WIP Regulation”, Robust Manufacturing Control, Section: Lecture Notes in Production Engineering, p135-145 2013, Editor: Windt, Katja, Springer Berlin Heidelberg ISBN: 978-3-642-30748-5, [http://dx.doi.org/10.1007/978-3-642-30749-2\\_10](http://dx.doi.org/10.1007/978-3-642-30749-2_10) .

#### PATENTS

- [11] Jason D. Dykstra, **Venkata Madhukanth Vadali**, Anomaly detection systems and methods employing a downhole tool with axially-spaced sensor packages, Filed: December 2, 2016, WO2018101968A1 (Pending)
- [10] Jason D. Dykstra, Xingyong Song, **Venkata Madhukanth Vadali**, Bottomhole Assembly (BHA) Stabilizer or Reamer Position Adjustment Methods and Systems Employing a Cost Function, Filed: December 8, 2016, WO2018106248A1 (Pending)
- [9] Jason D. Dykstra, Yiming Zhao, **Venkata Madhukanth Vadali** and Xingyong Song, Downhole Vibration Characterization, Filed: March 14, 2016, US16/074,001 (Pending), WO2017160272A1 (Pending)
- [8] Jason D. Dykstra, **Venkata Madhukanth Vadali**, Xingyong Song and Yiming Zhao, Bottomhole Assembly Design and Component Selection, Filed: December 29, 2015, US15/777,167 (Granted/Active – 29/12/2020), CA2997717A1 (Pending), WO2017116417A1 (Pending), GB2545951A (Pending)
- [7] **Venkata Madhukanth Vadali**, Jason D. Dykstra, Xiaoqing Ge, Yuzhen Xue, and Xingyong Song, Systems and Methods for Sensorless State Estimation, Disturbance Estimation, and Model Adaption for Rotary Steerable Systems, Filed: April 29, 2015, US15/563,316 (Pending), BR112017020685A2 (Pending), GB2554190A (Pending), CN107438694A (Pending), WO2016175797A1 (Pending), CA2980277A1 (Pending), AR104123A1 (Pending).
- [6] Jason Daniel Dykstra; Yuzhen Xue; **Venkata Madhukanth Vadali**; Xiaoqing Ge, Automated Optimal Path Design for Directional Drilling, Filed: December 31, 2014.

- Status: US15/525,534 (Granted – 26/05/2020), GB1704879.4A (Pending), AU2014415569A (Granted), WO2016108897A1 (Pending), CA2961347A1 (Pending), RU2670302C2 (Pending)
- [5] Xingyong Song, Jason D. Dykstra, **Venkata Madhukanth Vadali**, Yuzhen Xue and Xiaoqing Ge, Feedback Based Toolface Control System for a Rotary Steerable Drilling Tool, Filed: November 10, 2014, US15/517,203 (Granted/Active – 12/05/2020), WO2016076828A1 (Pending), GB2544016A (Pending), CA2963380A1 (Pending), AR101978A1 (Pending)
- [4] Yuzhen Xue, Jason D. Dykstra, Xiaoqing Ge, Xingyong Song and **Venkata Madhukanth Vadali**, Non-linear Toolface Control System For A Rotary Steerable Drilling Tool, Filed: November 10, 2014, US15/517,245 (Granted/Active – 05/01/2021), WO2016076827A1 (Pending), CA2960995A1 (Pending), AR101979A1 (Pending)
- [3] Jason D. Dykstra, **Venkata Madhukanth Vadali**, Xingyong Song, Xiaoqing Ge and Yuzhen Xue, Advanced Toolface Control of Next Generation GeoPilot, Filed: November 10, 2014, US15/517,226 (Granted/Active – 29/12/2020), WO2016076826A1 (Pending), CA2963378A1 (Pending), AR101981A1 (Pending)
- [2] Xiaoqing Ge, **Venkata Madhukanth Vadali**, Jason D. Dykstra, Xingyong Song and Yuzhen Xue, Gain Scheduling Based Toolface Control System For A Rotary Steerable Drilling Tool, Filed: November 10, 2014, US15/517,184 (Granted/Active - 2020-12-08), WO2016076829A1 (Pending), CA2963629A1 (Pending), AR101980A1 (Pending)
- [1] **Vadali, V.M.**, Ma, C., Duffie, N.A., Li, X. and Pfefferkorn, F.E., “Reducing Surface Asperities”, published: July 24, 2014, filed: Jan 24, 2013, US13/749,426 (Granted/Active - 11/06/2019), <https://www.google.com/patents/US20140202997>.